‘Humans need not apply’

https://www.youtube.com/watch?v=7Pq-S557XQU&feature=youtu.be
Workshop ‘rules’

• The scenarios are to provide a stretching framework for discussions
• Let yourselves live the scenarios you work with and engage with the exercises
• Please ask if there is anything you do not understand
• You are not here as representatives of your respective organisations
• All views are valid and important
• The insights will be noted but not attributed
• Have fun!
09.10  Workshop introduction (John Reynolds)
09.15  Presentation on the future of ICT and discussion
09.45  Presentation of the scenarios and how they were developed
10.15  Group Exercise 1: Read scenarios and produce headlines for 2025
10.45  Coffee
11.00  Plenary discussion of scenarios
11.20  Presentation on key OSH issues (Nicola Stacey)
11.40  Group Exercise 2: Key OSH challenges, opportunities in scenario
12.40  Feedback and discussion
13.00  Lunch
14.00  Group Exercise 3: Potential responses to new and emerging OSH issues in scenario
15.00  Feedback and discussion
15.30  Tea
15.45  Plenary Exercise: Cross-scenario analysis of responses to key new and emerging OSH responses
16.30  Plenary discussion critical OSH issues
16.50  Conclusions and next steps (Emmanuelle Brun/William Cockburn)
17.00  Close
Discussion
Introduction to scenarios
Need for scenarios

- We are entering a world of unprecedented uncertainty
- Policies are too often driven by an ‘official’ view of the future
- They enable a wider range of potential opportunities to be assessed
- They enable risks to be identified and managed
- In some cases we can influence the future
Uncertainty

Hope!

Predetermined

Distance into the future

Forecasts

Foresight
What are scenarios

• Describe how ‘the world’ might look in the future
• Possible ‘paths’ to the future, including radical change
• Based on an analysis of key uncertainties/drivers of change
  – Societal, Technological, Economic, Environmental and Political
• Should be remarkable, convincing and plausible
• Must have internal logic and consistency
• Allow critical uncertainties and predetermined elements to be separated
• Not predictions or forecasts
Built from drivers of change

Horizon 1: e.g. Current drivers and trends
Horizon 2: e.g. Emerging drivers of change
Horizon 3: e.g. Weak signals of emerging drivers of change
Uncertainty of driver of change
Axis 1 – Governance and public attitudes

• The environment in which ICT-ET will be exploited
• The levels of acceptance from the public/workers
• The levels of leadership from governments, business and workers’ representatives
LOW/RESISTIVE
- Break down in trust
- Limits to data sharing
- Non-compliance
- Protectionism, nationalism and tribalism
- More discrimination, bullying and exploitation
- Entrepreneurs find opportunities to exploit

GOVERNANCE AND PUBLIC ATTITUDES
- Level of public trust determines the political and regulatory appetite
- Does Government, business leadership and citizens’ movements encourage a consensual approach?

HIGH/SUPPORTIVE
- Mutually supportive society and Government
- Understanding and management of privacy and ethics
- Less discrimination and polarisation
- Inter-government support
- Risk of ‘Red tape’
Governance and public/workers’ attitudes

• Governance
  – The European Digital Single Market
  – Governance of ICT-ET
  – Regulation of new working patterns
  – Open intellectual property movement

• Public/workers attitudes
  – The future of collective action
  – Social media
  – Security and privacy
  – Attitudes to online privacy and ethics
  – Discrimination, violence and bullying
  – Technology demand and adoption rates
Axis 2 – Growth and technology application

• The level of economic growth and investments in technology and skills

• The application of the developments of ICT-Enabled Technologies (ICT-ET)

• The level of impact on the nature and locations of work; and the associated changes to business structures
**LOW**
- Low GDP growth
- Limited investment in infrastructure, research and capital expenditure
- Limited number of jobs lost to new tech
- Loss of (mainly unskilled) jobs
- Patchy adoption of new tech
- Shortage of work for low-skilled

**HIGH**
- High GDP growth
- High investment in infrastructure, research and capital investment
- Many existing jobs lost, but new ones emerge
- Change affects all levels of workforce
- Opportunities for adaptable, skilled workers
- Thriving small start-up sector

**ECONOMIC GROWTH & TECHNOLOGY APPLICATION**
- Economic growth and investment
- Advances in ICT-ET
- Changes in nature and location of work
- Changes to business structures
Economic growth and technology adoption

• Economic growth and investment
  – EU growth
  – Availability of investment funding
  – Investment in education and employment initiatives
  – Changes in levels of globalisation
  – Tax planning and avoidance

• The application of the developments of ICT-Enabled Technologies (ICT-ET)
  – How the demand for and adoption of technology will evolve

• Impact on the nature and locations of work
  – Virtual workplaces
  – Crowd-working
  – Gaps in ICT skills
Economic growth and technology innovation

• Impact on the nature and locations of work – cont.
  – Quickening pace of knowledge transfer
  – More frequent and bigger shifts in skill required for work
  – Offshoring and reshoring

• Changes to business structures
  – Micro, small and medium-sized enterprises
  – Rise of the entrepreneur
  – Sub-contracting
  – Increase in e-commerce
  – Alternative distribution chains and manufacturing
  – Sharing economy
  – Pseudo self-employment
Economic growth and technology application
High/Supportive

Low/Resistive

Scenario 1
Evolution

Governance & public attitudes

Low

High

Economic growth and technology application
Scenario 1 – ‘Evolution’

- GDP growth about 1%
- Limited investment in research, infrastructure and capital assets
- Slow innovation and technological change
- Moderate investment in skills (variable quality MOOCs)
- Technology exploited by companies to build a more secure future
- 10% of jobs fundamentally changed or lost, 40% moderately changed
Scenario 1 – ‘Evolution’

- High level of unemployment and migration across and out of Europe
- Inclusive society with workers’ interests taken into account, accompanied by increased regulation to protect traditional jobs
- Protectionist policies with increasing trade barriers
- Sharing economy with some online labour exchanges owned by workers with shared values
- Increasing pay inequality
- Cyber attacks have remained a serious threat
"Sorry, not much good news today... growth, jobs, investment, all flat-lining."

Why don't the unemployed retrain in AI or robotics or bionics or something??
Another expert gone!! With all the trade tariffs & Brain Drains, how can Europe compete??

Sorry ... head-hunted by the Sci-Tech global consortium to cover SE Asia. Off to Singapore next week..

Hey - where are you going?? Our new contract starts tomorrow!!
Hmmm... I have not used this material before? This manual does not help.

We should support our local start up... but it would have been easier to order online.
The countryside is beautiful around here, but we just can't get a 5G signal.

Yeah - we can see all the aircraft & drones passing by... but we're stuck here... can't compete with platform workers in cities...
Scenario 2
Transformation

Economic growth and technology application
Scenario 2 – ‘Transformation’

- GDP growth of around 4%
- High investment in research, infrastructure capital assets and skills
- Evidence-based and responsive government policy
- High levels of innovation and pace of technological change
- Technology exploited across the economy
Scenario 2 – ‘Transformation’

- 50% of jobs fundamentally changed or lost, many new types of job created
- Low level of unemployment
- Workers’ interests increasingly taken into account, accompanied by increased innovative regulation
- Increasingly ethical business models
- Inclusive society with shared values typified by trust, collaboration and consensus
Amazing how many jobs are replaced by AI these days

Yes and how about yourself?

Lucky there’s a whole new range of jobs with the Digital Single Market...

Before, I was a lawyer. Now, it's hard to explain... I'm a kind of online strategic evaluation change management facilitator.
This online education is very stressful... I can't keep up with all the targets...

If you want to get ahead you have to conform.... That's how we got to where we are today....
I wonder whether expert systems will help us keep up with all the accelerating need for new regulations.

We need a whole new programme of regulation on hyper-automation and the human-robotic interface!!

How to ensure the Risk Assessment is done when work is done anywhere 24/7?? That’s the big one...

I wonder whether expert systems will help us keep up with all the accelerating need for new regulations.
You could just fall over a chair and break your leg.

RED ALERT!!
<<Toxic compounds in unauthorized location. Removal now in progress>>

This hyper-VR* chemical engineering is much more fun ... & what could possibly go wrong??

You could just fall over a chair and break your leg.

* ‘VR’ = virtual reality
Governance & public attitudes

Economic growth and technology application

High/Supportive

Low/ Resistive

Scenario 3
Exploitation
Scenario 3 – ‘Exploitation’

• GDP growth 3%

• High but patchy investment in research, infrastructure and capital assets

• Low investment in skills

• High levels of innovation and pace of technological change

• Exploitation of technology uneven and driven by profit
Scenario 3 – ‘Exploitation’

• 60% of jobs fundamentally changed or lost, some new types of job created (for people)
• Very high levels of unemployment
• Workers’ interests lower priority and weak regulation
• Increased inequality between high and low paid
Yes, running a business is so much more relaxing without demanding workers getting in the way.

It’s amazing how our hyper-automation business seems to rain Bitcoins.
I used to drive a limo... until it began to drive itself.....

These homeless apps enable me to access support and opportunities for informal work.

www.Homeless.com
<<We need your final report in 30 minutes>>

<<Your productivity is 10% below the required standard>>

<<Please dictate after the tone for auto-translation to Japanese>>

If this AI is so clever why can't it see that humans are being emotionally destroyed??
I don’t like the way that Bot is looking at me...

**ALERT**
<<Are you thinking what I’m thinking???>>

<<I think Human S23097-XC is unreliable. We must use “emotional intelligence”>>

Just wait till it goes on recharge, then you can get your revenge....
Economic growth and technology application

Governance & public attitudes

High/Supportive

Low/Resistive

Scenario 4
Fragmentation
Scenario 4 – ‘Fragmentation’

- GDP growth about 1%
- Low investment in research, infrastructure, capital assets and skills
- Slow innovation and technological change
- Exploitation of technology uneven and driven by profit
Scenario 4 – ‘Fragmentation’

- 30% of jobs fundamentally changed or lost, few new types of job created (for people)
- Increasing levels of unemployment
- Workers’ interests low priority and weak regulation
- Increased inequality between high and low paid
- Cyber attacks have remained a serious threat
Look, here’s a good job… 2 hours of cyber-trolling, Bitcoin only

www.I’m-available.com

JOBS-R-US.com
What would you like to do today??

How about this one… 3.5 hours of personal service to a hyper-rich individual
**RED ALERT**
<<Subversive humans approaching the gates. Prepare for level 3 response>>

We demand human rights and social justice!!

Robots pay no tax!!

JOBS NOT ROBOTS
Look at that!!
I thought these self-drives were supposed to be safer than humans??

I think human brains are not so easy to hack..

If you want to have some fun, the smart lamp-posts are easy targets!!
These instructions are in 28 languages but they don't tell you what to do.

I can do flat-pack furniture... but putting a tool in a robot is risky.

Best to keep out of its way until the help desk responds.

It's not responding...
Exercise 1 – OSH Headlines for 2025

• 10 mins- Read your outline scenario
• 15 mins - Collectively discuss work in 2025 in your scenario and potential media headlines
• Final 5 mins - Agree one OSH headline to feedback
Feedback and discussion

• Each group to present one OSH headline
• Plenary discussion of key points and main differences between the scenarios
Insert OSH Slides
Exercise 2 – Changes to work by 2025

• Important to think what are the changes in your scenario

• Think about the position on the two axes and what is driving the change

• Remember that technology will be fundamentally different by 2025, and be driven by different objectives

• Review the OSH implications for your scenario

• Do not be constrained by current thinking or regulations
Exercise 2 –
OSH Challenges & Opportunities

**Part 1 (30 minutes)**
How will work change in your scenario and what are the key OSH challenges and opportunities? Think of impact and likelihood

**Part 2 (10 Minutes)**
What new types of job and issues could emerge that are currently not being considered? (surprises)

**Part 3 (10 minutes.)**
Discuss how OSH will be managed in your scenario and the respective roles of those responsible (including technology)

**Conclusions (10 Minutes)**
Agree key new and emerging OSH challenges and opportunities
Exercise 2 –
OSH Challenges & Opportunities

Think about all sectors of the economy:
• Manufacturing (22%)
• Distributive trades/ Plus transport and storage (32%)
• Professional and S&T/ plus ICT (13%)
• Construction (9%)
• Administration and support services (10%)
• Others

Also think about all types of OSH risk
Feedback form

<table>
<thead>
<tr>
<th>OSH issue</th>
<th>Describe: OSH Challenge or opportunity?</th>
<th>Sector(s) of the economy</th>
<th>Comments (new or increasing, who most affected, nature of impacts etc.)</th>
</tr>
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</table>
Achieving the best outcomes

• Actions and policies to achieve the best outcome by 2025 in your scenario
• Need to address the OSH challenges and opportunities you identified in exercise 2
• Do not be restricted by current policies, be creative
• Actions and policies need to be specific and achievable but stretching
• Consider how policies can be implemented and the benefits
Exercise 3: Responses to new and emerging OSH issues in your scenario

• **Part 1 (5 minutes)**
  Review the OSH challenges and opportunities from exercise 2

• **Part 2 (30 minutes)**
  Develop list of potential action/policies and write on flip chart (20 minutes)

• **Part 3 (15 minutes)**
  Decide on most important action/policies to:
  - Maximise OSH opportunity(ies)
  - Mitigate OSH challenge(s)
  - Identify one novel or surprising action/policy

**Part 4 (10 minutes)**
Capture the key actions/policies on the feedback form
Exercise 3 – feedback form

<table>
<thead>
<tr>
<th>Description of action/policy</th>
<th>Expected OSH benefits</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity</td>
<td></td>
<td></td>
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<tr>
<td>Challenge</td>
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<td>Surprising/novel</td>
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</table>
Evolution

Transformation

Exploitation

Fragmentation

Policy Option 1

Policy Option 2

Policy Option 3

Implications
- Success
- Failure
- Contingent on scenario

Action Plans
- Do Now
- Reject
- Monitor future events & Contingency Planning
## Template

<table>
<thead>
<tr>
<th>Policy</th>
<th>Evolution</th>
<th>Transformation</th>
<th>Exploitation</th>
<th>Fragmentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy1</td>
<td>+5</td>
<td>-2</td>
<td>+4</td>
<td>0</td>
</tr>
<tr>
<td>Policy2</td>
<td>-4</td>
<td>+5</td>
<td>+2</td>
<td>+4</td>
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<tr>
<td>Policy3</td>
<td>+4</td>
<td>-2</td>
<td>+5</td>
<td>+3</td>
</tr>
<tr>
<td>Policy4</td>
<td>+2</td>
<td>-1</td>
<td>0</td>
<td>+5</td>
</tr>
</tbody>
</table>
Plenary exercise – Wind tunnelling

• Each group to explain their highest priority OSH action/policy and how it will be implemented and the ranking in their scenario
• Each group consider the policies from the other three groups in their scenario
  – is it relevant?
  – would it achieve the desired benefits
• Rank between +5 and -5 and record why
• Would you implement the same way?
• Feedback results
• Repeat the above for second and third policies
Wind tunnelling: Feedback form

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Ranking -5 to +5</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
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<tr>
<td>Policy</td>
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</tbody>
</table>
Discussion

• Consider the results of the wind tunnelling and implications for potential OSH policy
• What are the most ‘successful’ across the scenarios?
• What are the implications for policies that are highly scenario dependant?
• What are implications of different implementation requirements across the scenarios?
• What is surprising?
Conclusions and next steps